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(56) Documents cited
The Merck Index Ninth Edition (1976) Merck and Company Inc Monographs 5343 and 8073

(58) Field of search
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(54) Shampoo for promoting growth of hair

(57) A shampoo comprising as its base a fatty acid composition obtained from a natural vegetable oil by purification and containing at least 80% of linoleic acid which is in the form of a free fatty acid, or a salt or an ester thereof having a low molecular weight and easily absorbable by the skin. Whereas natural vegetable oils heretofore used have a low linoleic acid content and therefore fail to achieve a remarkable effect, the high linoleic acid content of the shampoo is very effective for preventing hair loss and developing or growing hair.

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SPECIFICATION

Shampoo for preventing loss of hair and promoting growth of hair

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a shampoo for preventing loss of hair and promoting growth of hair without causing damage to the skin of the head.

2. Description of the Prior Art

Baldness has heretofore been thought attributable to various causes such as hereditary factors, a certain inclination involved in diet, condition of the skull, improper growth of the brain, an excess of male hormone, thin skin of the head, etc. However, the mechanism through which such causes lead to baldness still remains to be fully clarified, so that it has been almost impossible to refresh the bald head with hair.

Many of conventional preparations for preventing hair loss and promoting growth of hair are aqueous solutions of hinokitiol (oil of *Chemaecyparis taiwanensis*), menthol (peppermint oil), cayenne pepper tincture (oil of *Capsicum annum*) or the like. The aqueous solution is applied to the head skin to assure the skin of smooth blood circulation to thereby improve blood circulation through the hair bulbs for the prevention of hair loss and promotion of growth of hair.

Such preparations are composed chiefly of the components of vegetable oils. Thus, it has been known that vegetable oils are useful for preventing hair loss and promoting growth of hair by assuring smooth blood circulation through the head skin, i.e. in the hair bulbs.

SUMMARY OF THE INVENTION

The present inventor has found that soybean oil, cotton seed oil, safflower oil and sesame oil are more effective for smoothly circulating the blood through the head skin than hinokitiol, menthol and cayenne pepper tincture to effect improved blood circulation through the hair bulbs and discovered an effective method of use by finding out the reason for this advantage.

The mixed fatty acids of soybean oil, cotton seed oil, safflower oil, sesame oil, etc. among other natural vegetable oils contain about 35 to about 55% of linoleic acid. It is also known that the linoleic acid content is about 77 to 78% in the case of safflower oil. Although these natural vegetable oils appeared effective for the growth of hair, it was impossible to secure a remarkable effect therefor.

The inventor has conducted research in this respect for an improvement and found that a more remarkable effect can be achieved by using linoleic acid with an improved purity of at least 70% and preferably at least 80% as it is or in the form of a salt or ester thereof as a shampoo base than by applying vegetable oils, natural compositions, directly to the head skin.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Linoleic acid is an unsaturated fatty acid which is contained in large amounts in soybean oil, safflower oil, cotton seed oil, sesame oil, etc. and is widely used for food, cosmetics, etc. It is well known that the acid is harmless to the human body, so that it is usable for a shampoo for preventing loss of hair and promoting growth of hair, giving a feeling of safety to the user. Thus, people will feel like using such shampoor for refreshing and growing hair.

Linoleic acid is a nonconjugated unsaturated fatty acid having two double bonds and is 9,12-octadecadienoic acid.

The geometrical isomers of linoleic acids include the cis-cis form, cis-trans form, trans-cis form and trans-trans form. The linnoleic acid contained in natural soy bean oil, safflower oil, cotton seed oil and sesame oil is the cis-cis form and is cis-9,cis-12-octadecadienoic acid.

The acid is represented by the chemical formula $CH_3(CH_2)_4CH = CHCH_2CH = CH(CH_2)_7 . COOH$ and is contained as a glyceride in many vegetable oils such as soybean oil, safflower oil, cotton seed oil and sesame oil. The linoleic acid content of these natural fatty acid compositions is 35 to 55% in soybean oil, etc. or 77 to 78% when it is high as in safflower oil. Although such a natural composition is effective when applied to the head skin, the composition produces a remarkable effect when made to contain at least 80% of linoleic acid, as it is or in the form of a salt or an ester thereof, which has a low molecular weight in contrast to natural oils and fats wherein fatty acids are in the form of triglycerides of high molecular weight.

Linoleic acid of high purity is prepared by removing solid fatty acids from mixed fatty acids (linoleic acid content: 35 to 77%) of soybean oil, safflower oil, cotton seed oil, sesame oil or the like and repeatedly purifying the resulting mixture, or by the urea adduct process.

The acid is in the form of a colorless oily liquid, has a melting point of $-12°C$ and boiling point of 230°C, and is insoluble in water, soluble in organic solvents and susceptible to oxidation and hardening in air.

Accordingly a shampoo was prepared by mixing together linoleic acid and triethanolamine in

equimolar ratio to prevent oxidation hardening in air and admixing a suitable amount of water with the mixture. When the shampoo was used, the excess of linoleic acid not absorbed by the head skin was washed away, and a remarkable effect was achieved without entailing any objection due to the oxidation or polymerization of the unsaturated fatty acid.

Samples of shampoos were prepared for preventing hair loss and promoting outgrowth and growth of hair as stated below.

Sample	Material used	Linoleic acid content
1	Fatty acids of rice bran oil	35%
2	Fatty acids of soybean oil	50%
3	Fatty acids of safflower oil	75%
4	Extract from safflower oil fatty acids	95%

Each sample was prepared by admixing 249 g of purified water with 100 g of the fatty acid material and 52.3 g of triethanolamine, and stirring the mixture at 80°C in a hot water bath for 30 minutes.

Each of the samples was used for five 30- to 50-year-old males for clinical test. A 5 g portion of the sample was used for each person for shampooing once a day. The results are evaluated from an overall viewpoint as listed below.

Sample	Effect after the start of use		
	In 1 month	In 3 months	In 6 months
1	A	A	AA
2	A	A	AA
3	A	AA	AA
4	AAA	AAAA	AAAAA

A: No noticeable effect.

AA: Development of some fine soft hair and further growth.

AAA: Development of fine soft hair and growth into hard hair.

AAAA: Satisfactory growth of hair.

AAAAA: Overall thick growth of hair, indicating a remarkable effect.

The above results substantiate the advantage of the present invention.

Advantage of the Invention

The present invention has clarified that the effect heretofore produced by vegetable oils on the growth of hair is attributable to the action of linoleic acid which improves blood circulation in the hair bulb, normalizes the fatty acid composition at the sebaceous gland and activate the mother cell of hair for growing hair. The invention provides an improvement over the

conventional practice of applying to the head an oil of natural composition which consists chiefly of a triglyceride and contains about 50% of linoleic acid and which fails to produce a noticeable effect. For application to the head or for use in a shampoo, the present invention provides a fatty acid composition obtained from a natural vegetable oil by purifying the oil and containing at least 80% of linoleic acid in a state easily absorbable by the skin and having a low molecular weight (in the form of a free fatty acid, or an ester with a low-molecular-weight alcohol or a salt with an alkali). The composition is useful for growing short hair or thin hair, for developing fine soft hair at a bald portion of the head and growing such hair into hard hair of natural color.

CLAIMS

1. A shampoo for preventing loss of hair and promoting growth of hair characterized in that the shampoo comprises a fatty acid composition obtained from a natural vegetable oil and containing at least 70% of linoleic acid as it is or in the form of a salt or an ester thereof.
2. A shampoo according to claim 1 containing at least 80% of linoleic acid.
3. A shampoo substantially as hereinbefore described
4. A method of making a shampoo including forming a composition comprising mixing together a fatty acid obtained from a natural vegetable oil and linoleic acid, the mixture containing at least 70% of linoleic acid.
5. A method according to claim 4 wherein the composition contains at least 80% linoleic acid.
6. A method of making a shampoo substantially as herein described.

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